

D601 Telecommunications Churn Scenario and Data Dictionary

Scenario 2: Telecommunications Churn

In the telecommunications industry, customers can choose from multiple service providers and actively switch from one provider to another. Customer churn is defined as the percentage of customers who stopped using a provider's product or service during a certain time frame. In this highly competitive market, some telecommunications industries can experience average annual churn rates as high as 25%. Given that it costs 10 times more to acquire a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition.

For many providers, retaining highly profitable customers is the top priority. To reduce customer churn, telecommunications companies must not only predict which customers are at high risk of leaving but also identify key factors driving churn. This analysis will help executive leaders develop data-driven retention strategies, such as improving service reliability, enhancing customer support, optimizing pricing models, and personalizing engagement efforts.

You are an analyst on a team of analysts in a popular telecommunications company that serves customers in all regions of the United States. You have been provided with a dataset and asked to investigate customer data for this telecommunications company. You have been asked to analyze the dataset and build a data dashboard to enable executive leaders to explore the data, identify trends, and compare key metrics.

Audience Background

Executive Leaders

You will build a Tableau data dashboard that the following executive leaders of your organization will use to guide their decision-making. As described below, each leader has a specific focus and area of expertise in the organization, but they do not have a technical data analysis background like yours. As a result, the dashboard you build must be easy to navigate and should present broad and understandable insights from the data relevant to their perspectives.

Senior Vice President for Customer Experience (SVP)

- The SVP focuses on increasing customer engagement to improve the recruitment and retention of customers.
- They are interested in key characteristics that may drive the customers' behavior.

Executive Vice President of Sales (EVP)

- The EVP oversees strategic recruitment and helps retain renewal sales for the organization.
- They are interested in broad categorizations of customers and how the demographics appear across regions.



Chief Operating Officer (COO)

- The COO focuses on efficient operations, reducing costs, and maintaining high customer satisfaction.
- They are interested in identifying service issues and inefficiencies to improve customer retention.

Data Analytics Peers

You work on a team of data analysts who have technical backgrounds similar to yours. Members of this team are research-minded and have a specific interest in how the design, methodology, and results of a data analysis can be translated to specific business insights. Your peers are eager to hear you tell an engaging story about your data analysis, dashboard elements, and an explanation of your design choices.

Data File Being Used:

Telecommunications_Churn_Data.csv

Data Dictionary:

The dataset consists of the following categories of information:

- **Customer Demographics:** customer background and location details
- **Customer Churn:** customers who left within the last month
- **Customer Account and Billing Details:** customer interactions with the company and payment details
- **Customer Subscription and Product Features:** products and features the customer uses
- **Customer Survey Responses:** customer's rankings of telecommunication-related factors based on importance

The dataset consists of 10,000 customers and 50 columns, or variables:

- CaseOrder: a placeholder variable to preserve the original order of the raw data file
- Customer_id: unique customer ID
- Interaction, UID: unique IDs related to customer transactions, technical support, and sign-ups

Customer Demographics:

- City: customer city of residence as listed on the billing statement
- State: customer state of residence as listed on the billing statement
- County: customer county of residence as listed on the billing statement
- Zip: customer zip code of residence as listed on the billing statement
- Lat, Lng: GPS coordinates of customer residence as listed on the billing statement
- Population: population within a mile radius of customer based on census data
- Area: area type (rural, urban, suburban), based on census data



- TimeZone: time zone of customer residence based on customer's sign-up information
- Job: job of the customer (or invoiced person) as reported in sign-up information
- Children: number of children in customer's household as reported in sign-up information (may not be children of customer)
- Age: age of customer as reported in sign-up information
- Income: annual income of customer (or invoiced person) as reported at time of sign-up
- Marital: marital status of customer as reported in sign-up information
- Gender: customer self-identification as male, female, or nonbinary

Customer Churn:

- Churn: whether the customer discontinued service within the last month (yes, no)

Customer Account and Billing Details:

- Outage_sec_perweek: average number of seconds per week of system outages in the customer's neighborhood
- Email: number of emails sent to the customer in the last year (marketing or correspondence)
- Contacts: number of times customer contacted technical support (or, if they are a new customer, similar customer contacts in the new customer's profile)
- Yearly equip_failure: number of times the customer's equipment failed and had to be reset or replaced in the past year (or, if they are a new customer, similar failures as seen in the new customer's profile)
- Techie: whether the customer considers themselves technically inclined (based on customer questionnaire when they signed up for services) (yes, no)
- Contract: the contract term of the customer (month-to-month, one year, two years)
PaperlessBilling: whether the customer has paperless billing (yes, no)
- PaymentMethod: customer's payment method (electronic check, mailed check, bank (automatic bank transfer), credit card (automatic))
- Tenure: number of months the customer has stayed with the provider
- MonthlyCharge: amount charged to the customer monthly. This value reflects an average per customer. For new customers, this value is the average for other customers who fit the new customer's profile.
- Bandwidth_GB_Year: average amount of data used, in gigabytes, in a year by the customer (if the customer is newer than a year, this value is approximated based on initial use or average usage for a typical customer in their demographic profile)

Customer Subscription and Product Features:

- Port_modem: whether the customer has a portable modem (yes, no)
- Tablet: whether the customer owns a tablet such as iPad, Surface, etc. (yes, no)
- InternetService: customer's internet service provider (DSL, fiber optic, None)
- Phone: whether the customer has a phone service (yes, no)
- Multiple: whether the customer has multiple lines (yes, no)
- OnlineSecurity: whether the customer has an online security add-on (yes, no)
- OnlineBackup: whether the customer has an online backup add-on (yes, no)
- DeviceProtection: whether the customer has a device protection add-on (yes, no)
- TechSupport: whether the customer has a technical support add-on (yes, no)
- StreamingTV: whether the customer has streaming TV (yes, no)



- StreamingMovies: whether the customer has streaming movies (yes, no)

Customer Survey Responses:

The following variables represent responses to an eight-question survey asking customers to rate the importance of various factors on a scale of 1 to 8 (1 = most important, 8 = least important):

- Item1: Timely response
- Item2: Timely fixes
- Item3: Timely replacements
- Item4: Reliability
- Item5: Options
- Item6: Respectful response
- Item7: Courteous exchange
- Item8: Evidence of active listening

